memmert

OPERATING INSTRUCTIONS

Water- and Oilbaths

WB/OB 7 – 45

WBU 45

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The text of these Operating Instructions has been translated from the German. If any part of the text is doubtful or the interpretation is unclear, and also in case of errors, the German original is to be considered as valid.

1 Congratulations on your choice of a MEMMERT water/oilbath

Manufactured in Germany using the latest production techniques and finest materials available, you now posses a technically superior and fully developed product. Your bath has already been under extensive testing in our factory.

For correct operation of the equipment it is essential to observe the operating and maintenance instructions below. This will ensure that your equipment will give many years satisfactory service.

Explanation of signs
These signs mark important indication in the operating instructions

The corresponding markings on the unit means:
Note the Operating Instructions!
Attention, outside case temperature may be hot!

Technical data summary

MEMMERT water- and oilbaths Series WB and OB are electrically heated and electronically controlled.

The temperature of the thermostating liquid is continuously controlled by a microprocessor-controller with pulse package control. Electronic microprocessor-PID-controller with continuous power matching and autodiagnostic system with fault indicator (Check list for rectifying faults see chapter 14), integral timer for digital programme time selection.

The temperature is measured using a Pt 100 temperature sensor. The accuracy is as follows:

	WB/WBU	OB
Temperature-set-accuracy	0,1ºC	1ºC
Temperature fluctuation	±0,1ºC	±0,5ºC

The components of temperature control are controlled by integrated malfunction - recognition.

The heaters are installed outside - therefore no problems through dirt or limeresidue.

Installation

The unit must be placed on a level surface which cannot tilt.
The vent openings in the left and back side must remain unobstructed. **Minimum wall spacing on all sides is 80 mm. The minimum spacing from the top of the bath to the next ceiling (rack, etc.) is 75 cm**.

Transport:
Always use gloves!
If the units have to be carried, at least 2 persons are required for this mode of transport.

Ambient conditions	Ambient temperature 5ºC - 40°C, rH max. 80%. Overvoltage Category: **II;** Contamination degree: 2 according to IEC 664
Setting temperature range	10ºC to 95ºC at waterbaths (WB / WBU) WB with additional boiling stage until 100ºC see 5.2. 10ºC to 200ºC at oilbaths
Working temperature range	From 5ºC above ambient to nominal temperature = maximum temperature (see rating plate). with circulating pump 15ºC
Overheat safety device	DIN 12877, thermal safety classes 1 standard, Class 2 special equipment at waterbaths Class 2 standard at oilbaths.
Electrical supply	230 V~±10%, 50 or 60 Hz. Adequate insulated supply which incorporates earth conductor to EN 61010, Protection IP 20, no humidity protection to DIN 40 050. Interference suppression Grade N to VDE 0875. A fuse 250V, 15A quick is used for unit protection **Before current-connection please compare label on the bath and instructions of your local current supplier.** (e.g. in Germany, DIN VDE 0100 with FI - safety device).

Quality of material

Memmert is using stainless steel (Spec. 1.4301) for the external casing as well as for the interior, an outstanding material because of its high stability, optimum hygienic features and corrosion resistance against many (not all!) chemical combinations (Attention e.g. at chlorine combinations!).

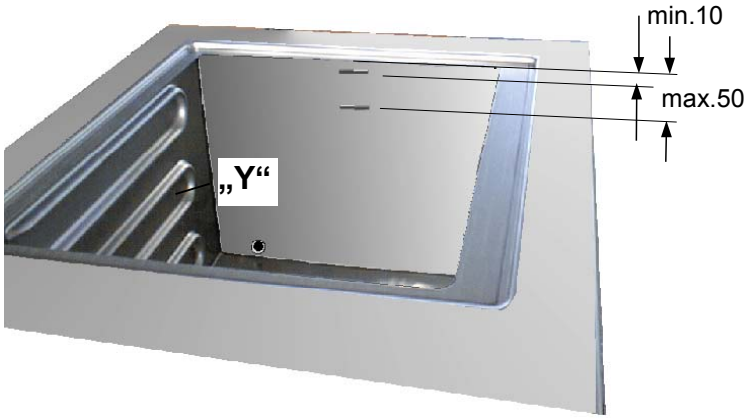
model	volume	current consume	power	weight	circulating pump
WB/OB 7	7 l	5,2 A	1200 W	11 kg	
WB/OB 10	10 l	5,2 A	1200 W	14 kg	
WB/OB 14	14 l	7,8 A	1800 W	16 kg	
WB/OB 22	22 l	8,7 A	2000 W	17 kg	
WB/OB 29	29 l	10,4 A	2400 W	24 kg	
WB/OB 45	45 l	12,2 A	2800 W	26 kg	
WBU 45	45 l	12,2 A	2800 W	27 kg	X

2 Installation - waterbaths

Main connection

The mains connection cable must be placed away from any hot surface.

Filling



In order to garant the high quality of the stainless steel it is recommended by the steel producer to fill the waterbath with **demineralised** water.

IMPORTANT! The water level in the bath must be between the two markings in the right side wall of the tub. The water level must be between 10 mm and 50 mm from the top edge of the tub.
Waterbaths can be fitted with a level control system (see chapter 10).

Emptying

The tank can be drained through the drain valve "Y". The thermostating fluid must be cooled to room temperature before draining. Drain the fluid either directly into an appropriate container or connect an appropriate hose to the drain valve.

NOTE: Polluted fluids may not be drained directly into the public wastewater system. If the thermostating fluid is polluted, please make sure that it will be properly filtered or dumped according to the applicable regulations.

IMPORTANT!

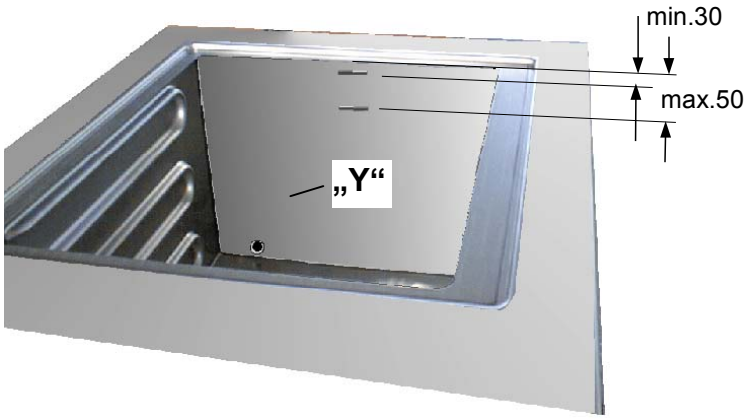
Operation with non-flammable thermostating liquids only!

3 Installation - oilbaths

Mains connection

The mains connection cable must be placed away from any hot surface.

Filling



IMPORTANT! The liquid level in the bath must be between the two markings in the right side wall of the tub. The liquid level must be between 30 mm and 50 mm from the top edge of the tub.

Emptying

The tank can be drained through the drain valve "Y". The thermostating fluid must be cooled to room temperature before draining. Drain the fluid either directly into an appropriate container or connect an appropriate hose to the drain valve.

NOTE: Polluted fluids and oils may not be drained into the public wastewater system. Please make sure, that the oil will be properly dumped according to the applicable regulations.

We recommend Silicon-Oil (for example Baysilon PN 200 produced by Bayer). For safety reasons the flash point of the oil must be at 300ºC or higher. The manufacturer of the oil may also have special regulations for oil-changing intervals due to pollution or aging of the oil which have to be observed.

WARNING!
In case of fire never extinguish with water.
Use appropriate fire-extinguisher medium!!

An overheated bath must never be refilled or topped up!!

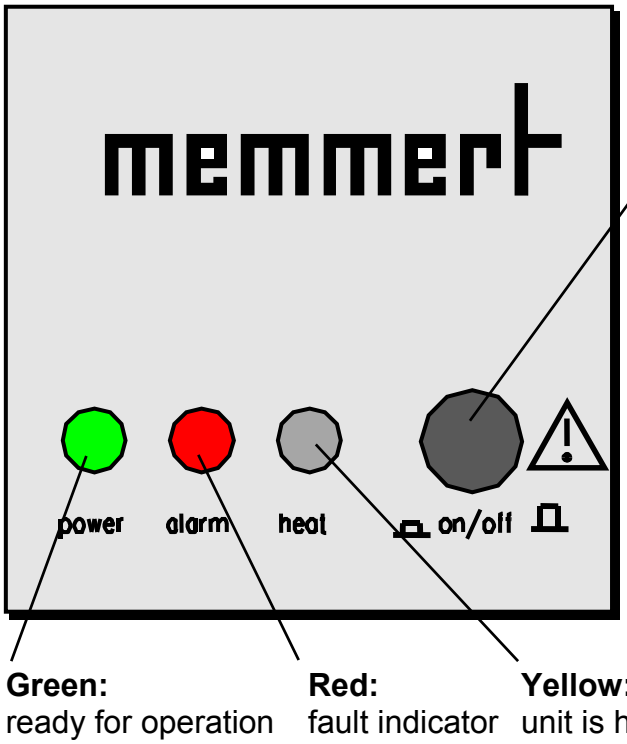
ATTENTION!

Take special care when working at high temperature!
Outside case temperature may be hot!

4 Main switch module

The main switch module contains:

- main switch
- three signal lamps for display of the unit status



main switch pushed:
unit ready for use

main switch not pushed:
unit is shut down

The previous setpoint is indicated briefly on the controller display after switching on. (blinking point)

Green:
ready for operation

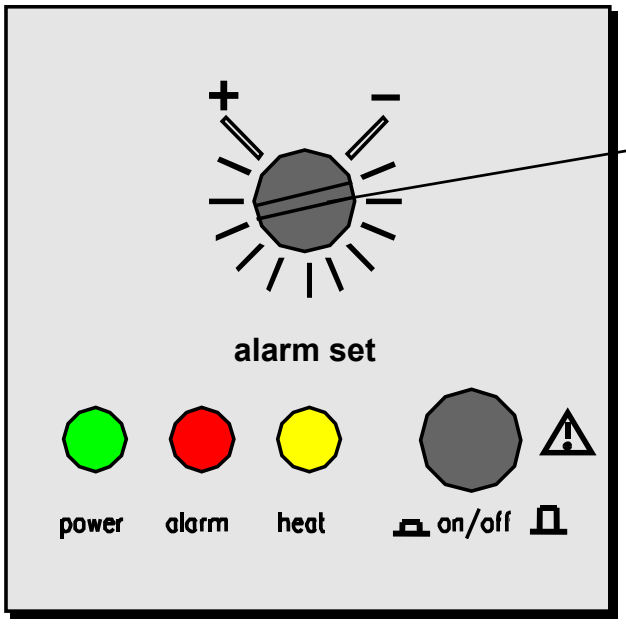
Red:
fault indicator

Yellow:
unit is heating

4.1 Main switch with overtemperatur protection (in OB - standard, in WB - optional)

The main switch module contains:

- main switch
- three signal lamps for display of the unit status
- knob to adjust the overtemperature

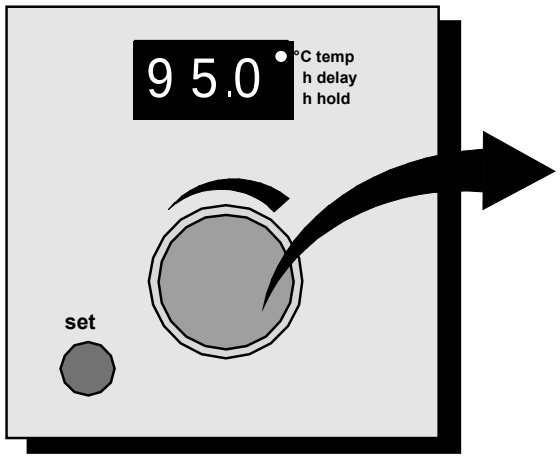


Adjustable temperature limiter

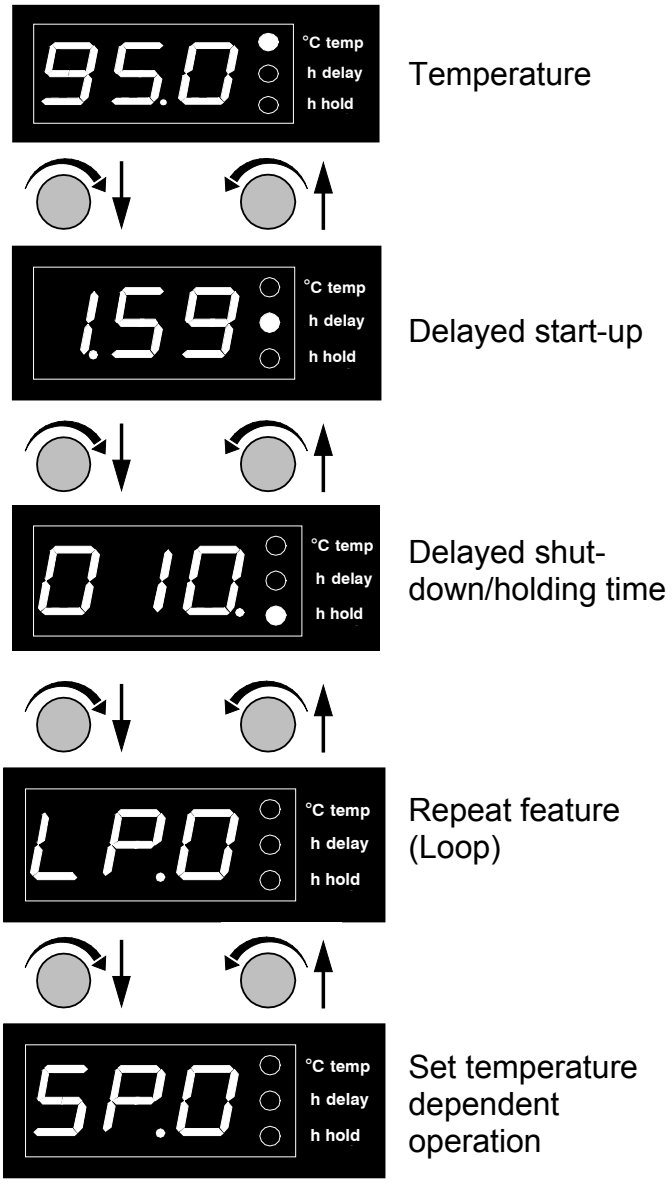
Adjust the overtemperature as described in chapter **Safety devices.**

5 Working controller module

The working controller can be operated using the digital **rotary knob** and the **set-button**. The multifunctional display gives information about temperature and program setting.



menu items to choose:



Set-button **Rotary knob**

Effect of turning the rotary knob:

Set button not actuated:

- selection of the menue item

  temp
  delay
  hold
  LP
  SP

Set button actuated:

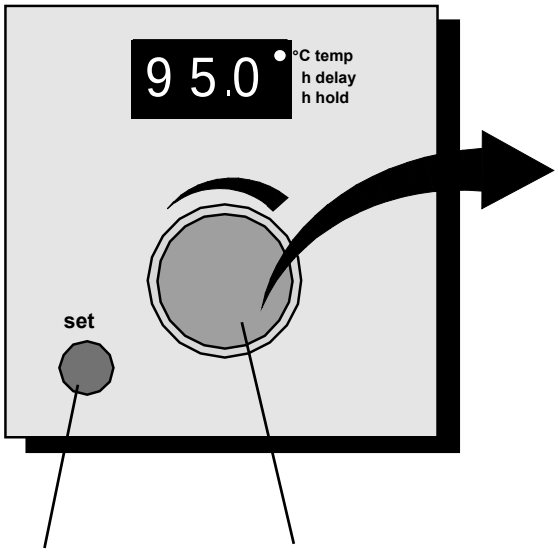
- ***Press:*** Setpoint is displayed (temperature or time, decimal point is flashing).
- ***Hold down:*** Displayed value can be changed with the rotary knob.
- ***Release:*** Value is stored in memory

= turn rotary knob clockwise

= turn rotary knob anitclockwise

5.1 Temperature setting

With the set-button not pushed, the display will show the actual temperature within the chamber. The temperature setpoint can be set as follows:



Set-button

pushed

Rotary knob

will change the temperature setpoint

- Hold down set-button and set the required temperature with the rotary knob, decimal point on the display is flashing.
- Release set-button.
- The selected set temperature is stored into memory and is displayed for approx. 3 seconds. Decimal point is flashing.
- single digit = 0,1ºC for the waterbath, and 1ºC for the oilbath

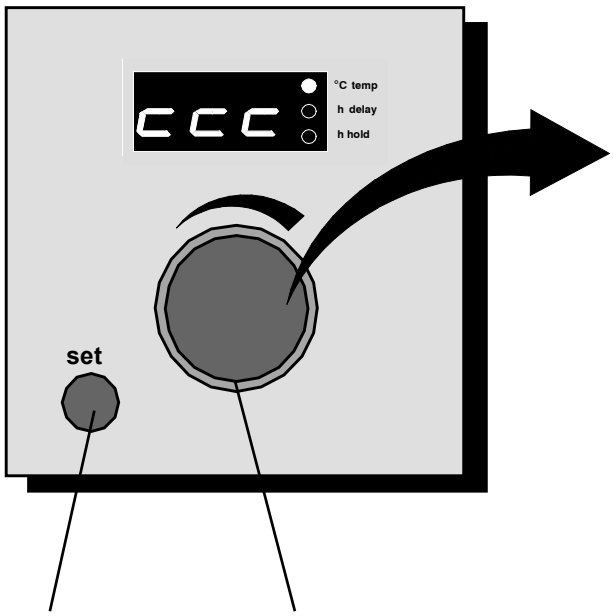
- The decimal point stops flashing and the display switches back to actual temperature (85°C in this example).

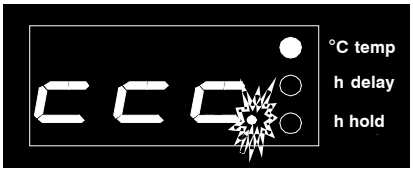
Notice:

- Changing the displayed setpoint is only possible, if the set-button is held down at the same time. This helps to avoid unintentional changes.
- Turning the rotary knob rapidly changes the setpoint in large steps; turning it slowly changes the setpoint in single digits.
- All settings are stored peramanently within the controller memory (excluding „boiling stage“)

5.2 Temperature - boiling stage (only in waterbaths)

To reach the temperature of the water higher than 95ºC (boiling point) in the waterbath, a boiling stage is provided. If this has been set, the heating is switched on continuously. The boiling stage can be activated as follows:





- Hold down set-button and raise the set temperature with the rotary knob over 95ºC. The display will show "ccc". The decimal point on the display is flashing.
- Release set-button.
- The selected boiling mode is stored into memory and the display for approx. 3 seconds. Decimal point is flashing.

Set-button	**Rotary knob**
pushed	will change the temperature setpoint

- The decimal point stops flashing and the display switches back to actual temperature (93,0ºC in this example)

- The display of the actual temperature can at most reach 110ºC. Over 99,9ºC the single digit will be 1ºC.
- The setpoint "boiling stage" will **not be stored** permanently into memory. After switching the apparatus off and on again, the controller shows the set value fixed before.

Notice:

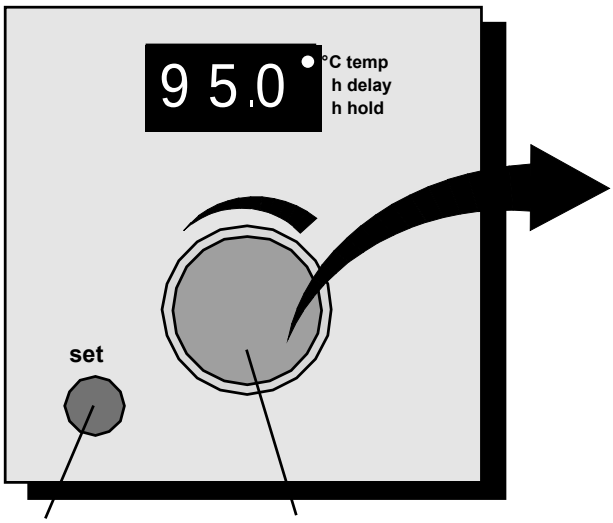
- Pay attention to the waterlevel is all the time high enough. Evaporation can cause an enormous loss of water.
- **The liquid level has to be chosen in this way, that the boiled liquid in the loaded waterbath does not spill.**

ATTENTION!

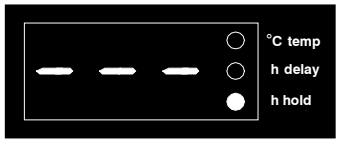
Even in the operation with a cover, hot water steam will emerge.

5.3 General notice to timer settings

The menu items delayed start-up "delay" or delayed shut-down "hold" can be selected by turning the rotary knob while pushing the main switch. The present times can then be displayed or changed as follows:

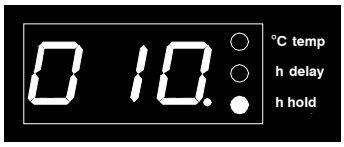


Set-button	Rotary knob
pushed	will change time setpoint



Delayed start-up or shut-down are deactivated.

Between 1 minute and 9 hours, 59 minutes the single digit is 1 minute.



Between 10 hours and 999 hours the single digit is 1 hour.

5.4 Adjustment of the special functions

In addition to the menu items status-LEDs temp, delay and hold, the menu items LP (for "Loop") and SP (for "setpoint") can also be selected by turning the rotary knob while pushing the main switch (function of LP and SP see chapter 6).

Repeat feature (LOOP)

LP.0 = Loop-function deactivated.
LP.1 = Loop-function activated.

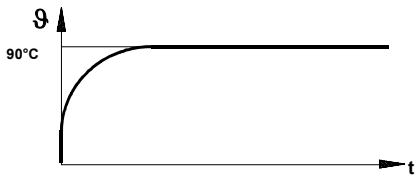
Set temperature dependent operation (hold-time)

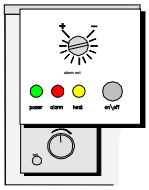
SP.0 = set temperature dependent hold-time not activated.
SP.1 = set temperature dependent hold-time activated.

6 How to set up for operating status and for program sequences

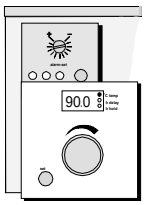
6.1 Set up for continuous / normal operation

This is the present operating and the mode of operating as the bath is delivered up.

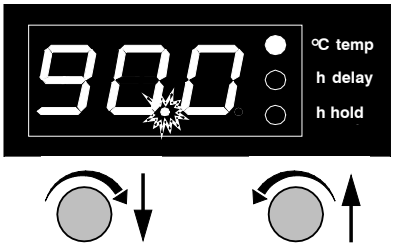




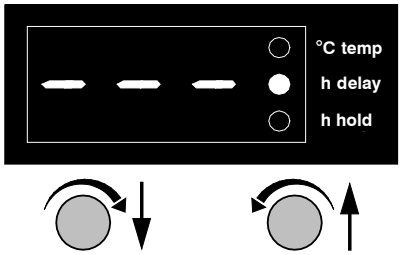
- main switch pushed



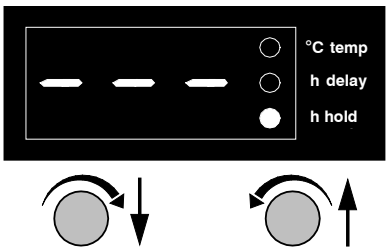
- the function of the rotary knob refer to 5. - working controller module



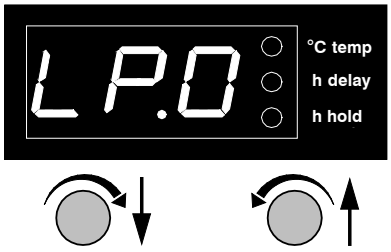
- select set temperature



- deactivate on-delay timer



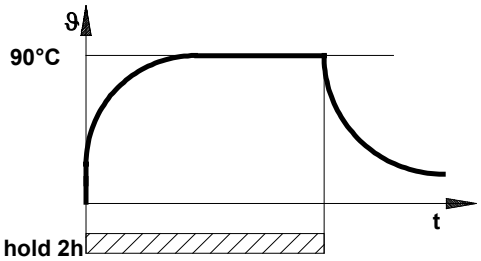
- deactivate hold timer



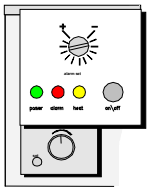
- deactivate Loop-function

- deactivate set temperature dependent operation

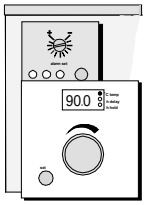
6.2 Programming of a delayed shut-down



Example: The unit has to shut down the heating after 2 hours operation (including heat-up time) with temperature setting at 90ºC.

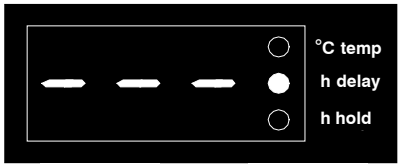


- main switch pushed



- function of the rotary knob refer to 5. - working controller module

- select set temperature



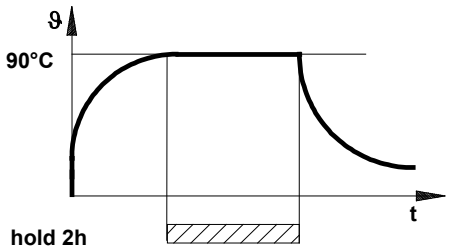
- deactivate on-delay timer

- set hold timer

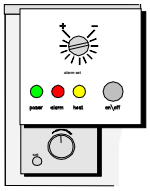
- deactivate Loop-function

- deactivate set temperature dependent operation

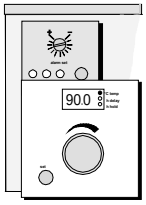
6.3 Programming of a delayed shut-down, dependent on set temperature



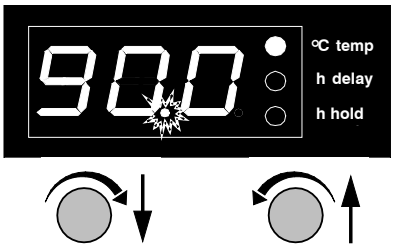
Example: The unit has to shut down the heating 2 hours **after** it has reached its set temperature of 90ºC.



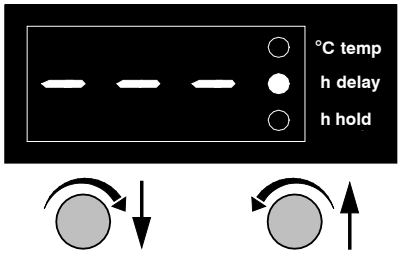
- main switch pushed



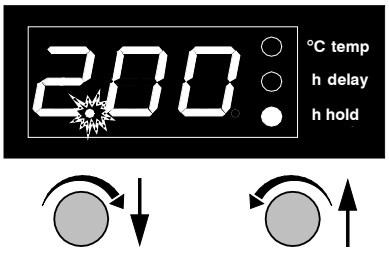
- function of the rotary knob refer to 5. - working controller module



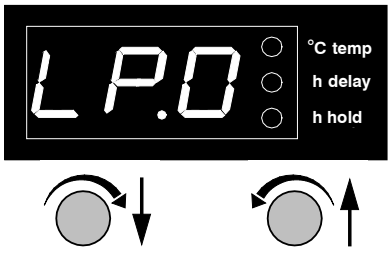
- select set temperature



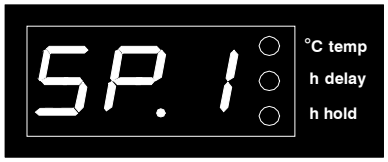
- deactivate on-delay timer



- set hold timer

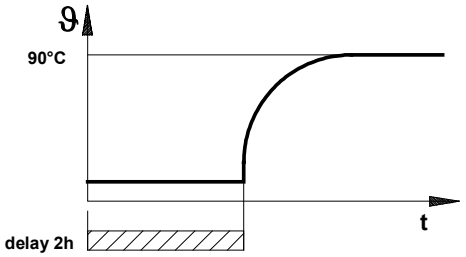


- deactivate Loop-function

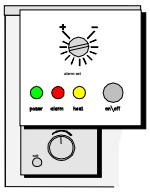


- activate set temperature dependent operation

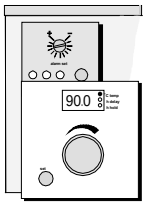
6.4 Programming of an on-delay



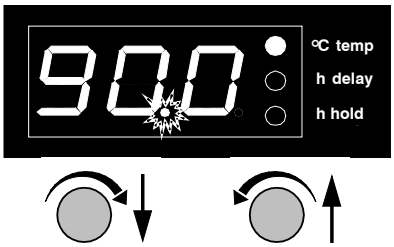
Example: The unit has to start heating to 90ºC after a 2 hour delay.



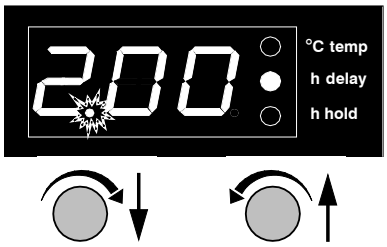
- main switch pushed



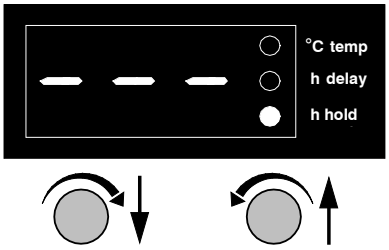
- function of the rotary knob refer to 5. - working controller module



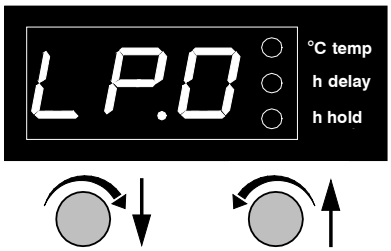
- select set temperature



- set on-delay timer



- deactivate hold timer

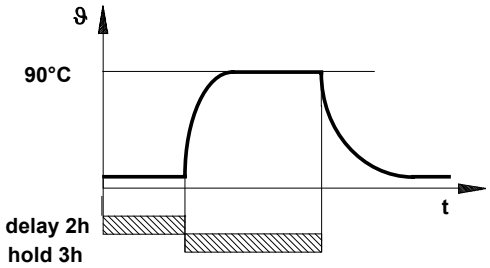


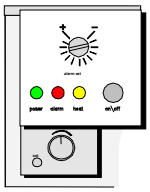
- deactivate Loop-function

- deactivate set temperature dependent operation

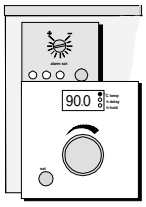
6.5 Programming of an on-delay and a hold time

Example: The unit has to start heating to 90ºC after a 2 hour delay and shut down after 3 hours operation (including heat-up time).

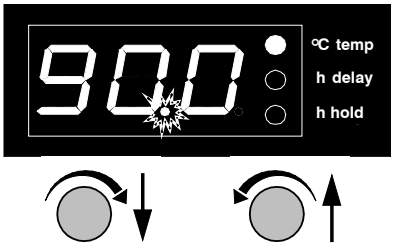




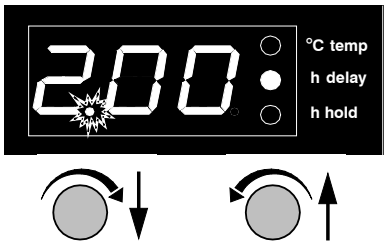
- main switch pushed



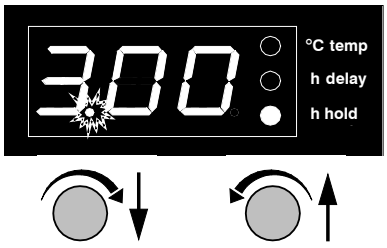
- function of the rotary knob refer to 5. - working controller module



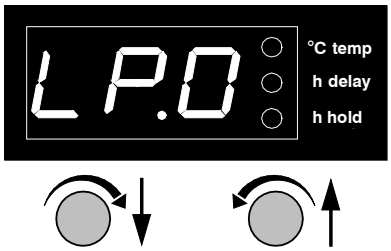
- select set temperature



- set on-delay timer



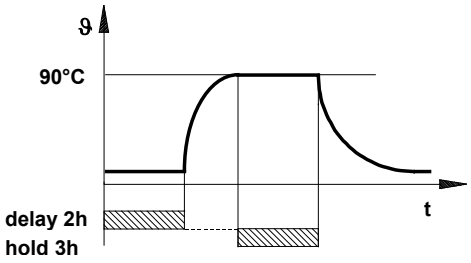
- set hold timer



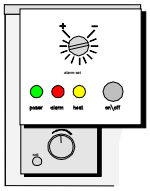
- deactivate Loop-function

- deactivate set temperature dependent operation

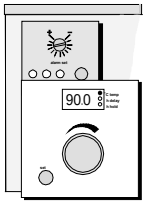
6.6 On-delay and hold time dependent on set temperature



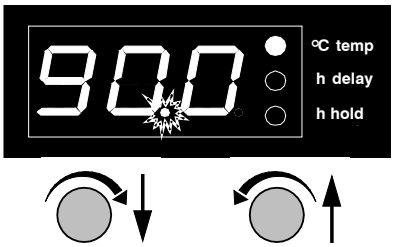
Example: The unit has to start heating to 90ºC after a 2 hour delay and shut down after 3 hours of operation at the set temperature.



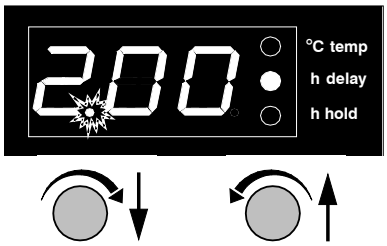
- main switch pushed



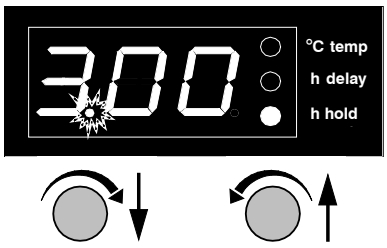
- function of the rotary knob refer to 5. - working controller module



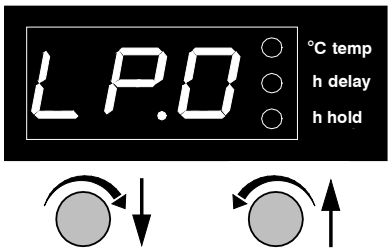
- select set temperature



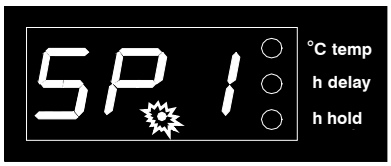
- set on-delay timer



- set hold timer

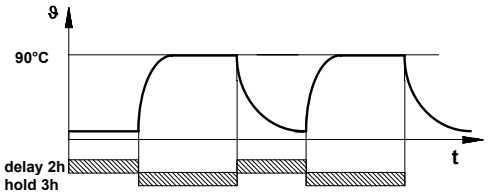


- deactivate Loop-function

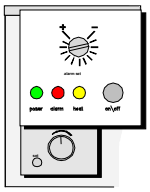


- activate set temperature dependent operation

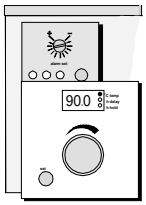
6.7 Programming of an on-delay and hold time with Loop-function



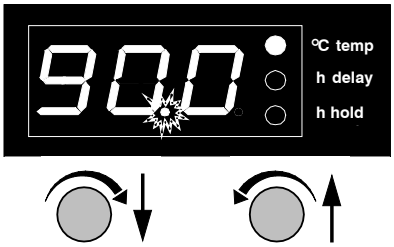
Example: The unit has to start heating to 90ºC after a 2 hour delay, cool down to room temperature after 3 hours of operation (including heat-up time) and repeat this pattern over and over.



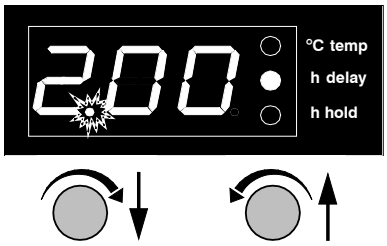
- main switch pushed



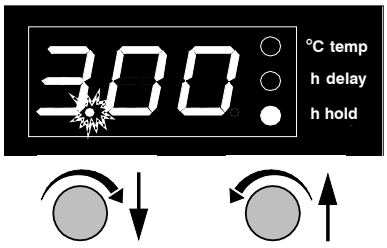
- function of the rotary knob refer to 5. - working controller module



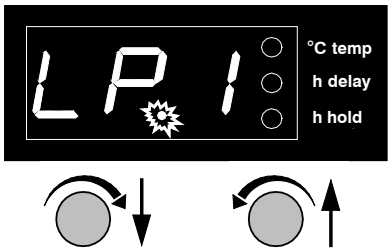
- select set temperature



- set on-delay timer



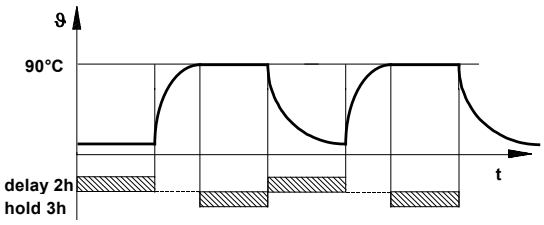
- set hold timer



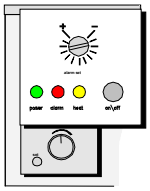
- activate Loop-function

- deactivate set temperature dependent operation

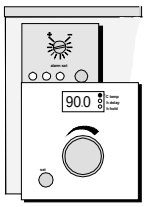
6.8 Programming of an on-delay and hold time with Loop-function and set temperature dependent operation



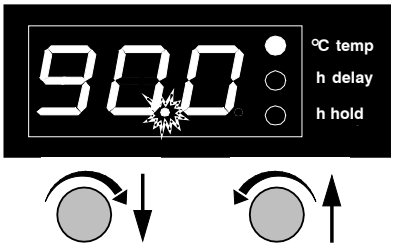
Example: The unit has to start heating to 90ºC after a 2 hour delay and shut down after 3 hours of operation at the set temperature, cool down to room temperature and repeat this pattern over and over.



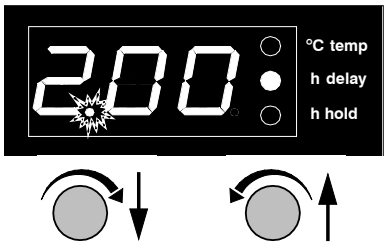
- main switch pushed



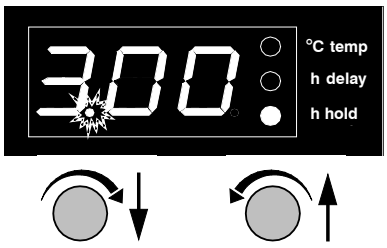
- function of the rotary knob refer to 5. - working controller module



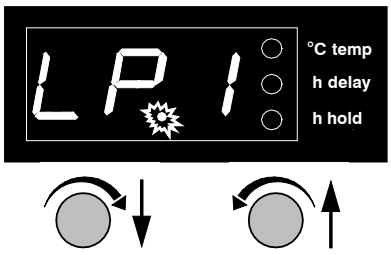
- select set temperature



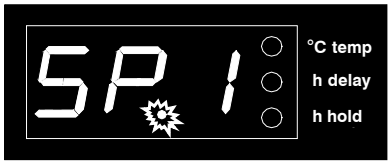
- set on-delay timer



- set hold timer



- activate Loop-function

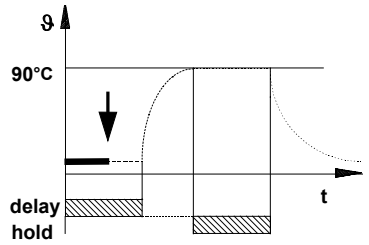


- activate set temperature dependent operation

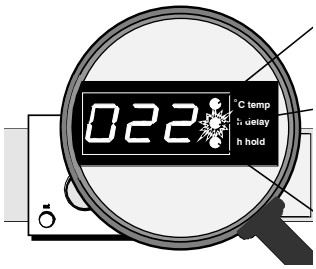
7 Supervision of the program flow

The status-LEDs in the controller display give information about the program status at a glance.

Example: Delayed start-up and delayed shut-down with set temperature dependent operation **as described in example 6.6**



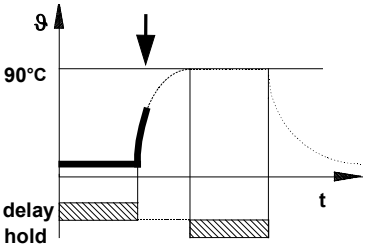
Unit is not heating



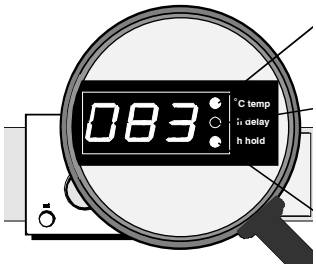
on
actual temperature is displayed

flashing
on-delay timer is running

on
hold timer is programmed



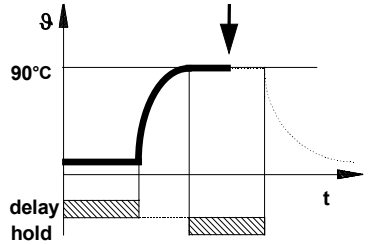
Unit is heating up to setpoint



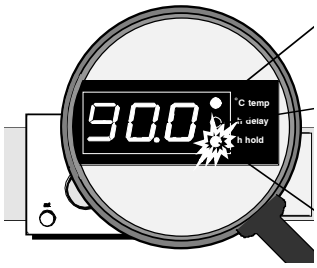
on
actual temperature is displayed

off
on-delay timer ran down

on
hold timer is programmed



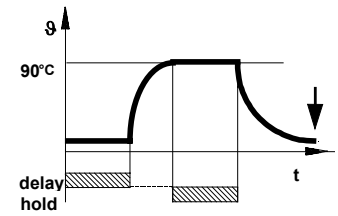
Unit holds temperature at set value



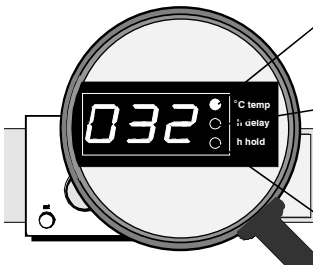
on
actual temperature is displayed

off:
on-delay timer ran down

flashing
hold timer is running



Heating is switched off



on
actual temperature is displayed alternating with **"End"**

off
delay timer ran down

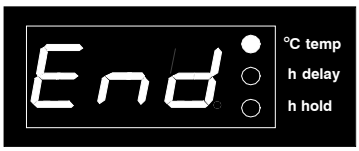
off
hold timer ran down

Further information during program operation:

All **actual values** can be accessed by **turning the rotary knob** (selection of the menu items) even through program operation.

The **setpoint** of each menu item can be checked by pressing the **set-button** briefly.

End of the program / Restart:

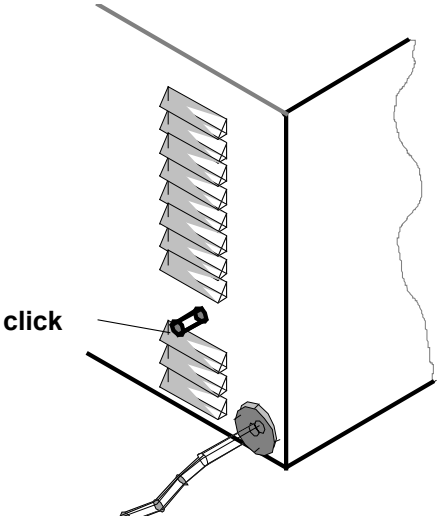


After the end of the program the actual temperature is shown alternating with "End" in the display of the working controller module. Restart by switching the unit off and on or by checking or changing the timer settings.
All program settings are stored permanently within the controller memory (excluding „boiling stage“ setting)

8 safety control unit

8.1 Temperature limiting device (standard in waterbaths)

For safety purposes this water/oilbath is equipped with an additional overtemperature protection TB (class 1 in compliance with DIN 12877) which automatically shuts off the bath if it exceeds the maximum temperature.
The bath may exceed the maximum temperature if it is used without or not enough thermostating fluid, or if the working controller is defective.
In this case the temperature limiter TB will switch off the unit at a fixed temperature above the maximum temperature. The temperature display of the working controller and the yellow control light will turn off. The green and red control light will remain on.



- **Reset TB**
  When the water bath has cooled down or has been filled, heating can be cut in again by pressing the red button, on the back of the water bath. The unit will emit an audible click when the temperature limiting device is reset.
- Possible problems during the first run
  Unusual conditions, which may occur during transport, e.g. strong shocks or very low temperatures (below -5ºC) can result in a release of the temperature limiter TB.

  The overtemperature protection can be reset by pressing the red button which is located on the back of the bath.

Despite this safety device it is mandatory to make sure that the bath is always filled to a proper level to avoid danger to persons or damage to the unit.

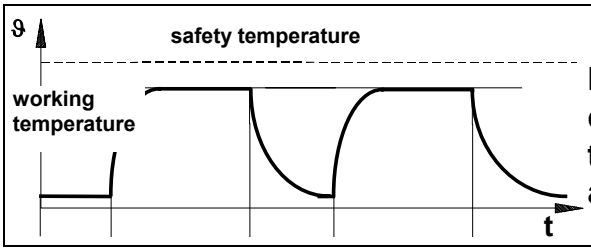
If the reason of the malfunction cannot easily be recognised (transport, too low fluid level, etc.) **it is necessary to contact a qualified electrician.**

8.2 Adjustable temperature limiter (TWB), class 2 according to DIN 12877 (standard equipment in oilbath, special equipment in waterbath)

The adjustable temperature limiter TWB works according to DIN 12877 independently of the temperature control system. By different adjustments, those safety devices can have two different functions:

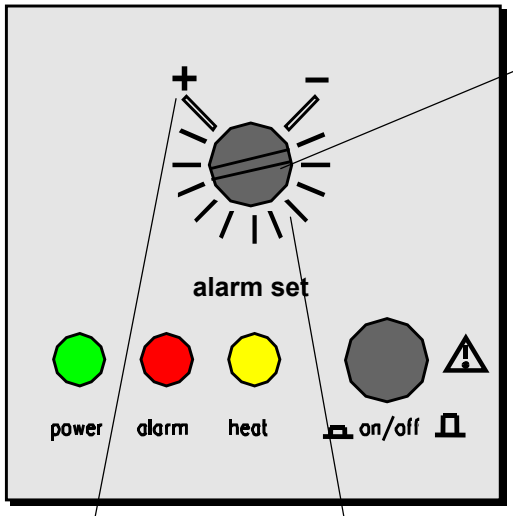
- Protection of unit and environment and
- Protection of the load from excessive temperature

The safety devices should be checked at regular intervals, e.g. once a month, once the bath has stabilised at the desired temperature. To perform this safety check, reduce the setting of the safety device until the red control light at the main switch module turns on. After that, the safety device can be set again.



Notice:

During programmed operation the safety control unit has to be set sufficiently higher than the maximum working temperature or at the maximum temperature of the bath.



Upper temperature limit:
Protection of unit and environment

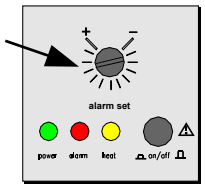
Set close to the switching point:
Protection of the load

Protection of unit and environment:

- Turn the adjustable overheat controller e.g. by use of a coin to upper temperature limit.

Protection of load:

- First turn adjustable overheat controller to upper limit.
- After the unit has stabilised, the setting of the overheat limiter should be moved down until it operates:
  The red signal lamp in the main switch module turns on.
  Now turn the temperature limiter to nearly one digit higher.
- The temperature limiter must be reset by pressing the adjustment knob.



Maximum temperature rating of unit	95°C	200°C
one scale line means approx.	12°C	16°C

Should the temperature rise above the set safety temperature, the adjustable temperature limiter switches off the heating.

•The „alarm“ lamp turns on

In this case please check the TWB setting as described and readjust it if necessary. Should a fault condition be present, please contact an authorised service station for Memmert equipment.

9 Use of the cover (special equipment)

Gable cover — The gable cover (may be ordered as already mounted special equipment) should always be closed in order to prevent evaporation of thermostating liquid and to obtain optimal temperature distribution. The gable shape of the cover makes sure that condensed water will not drop down into the loads.

Flat cover — For positioning of test flasks on top of the bath, a flat cover (special equipment) may be used. The size of the holes in this cover can be adapted to the flasks with ring inserts. Please note that the flat cover will heat up with the thermostating liquid. The rings may therefore only be inserted or taken off, if the bath is cooled down.

10 Level control (special equipment only waterbaths)

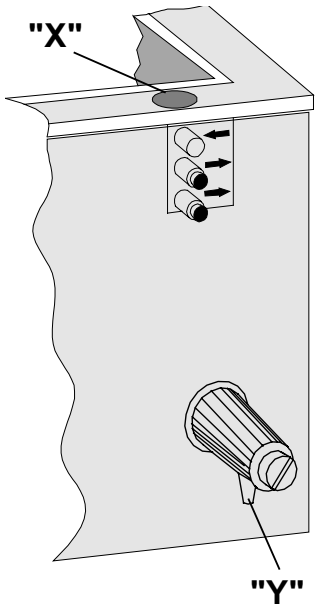
2 different filling levels can be maintained constant if the unit is fitted with a level control system. When using water as thermostating liquid, connect the feed pipe with tubing to the mains water supply. The overflow must be connected with tubing to an appropriate container or sink.
Make sure, that the tubing cannot be clogged or bended, and that it continually runs downhill.

Please note, that the overflowing water may be up to 100ºC hot.

Feed pipe and overflow are indentified by arrows. Use temperature resistant material for the tubing.

If the second overflow is not required, it must be closed with a sealing cap.
The evaporation loss can be compensated by turning on the water supply slightly (drops). The water flow can be checked through the opening "X".

The level control system **cannot** be retrofitted!



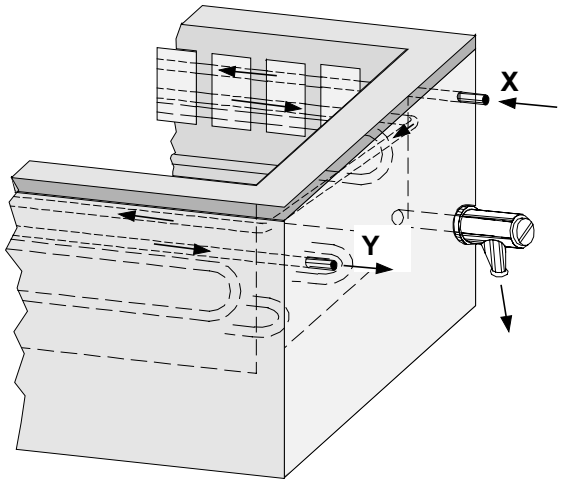
ATTENTION!

Take special care when working at high temperature!
Outside case temperature may be hot!

11 Cooling system (special equipment only waterbath)

When the water bath is fitted with a cooling system for faster cooling of the bath liquid, connection "X" must be linked by tubing to a cold water mains supply.

Connection "Y" must be run into a sink by means of tubing.



Use temperature resistant material for the tubing.

Please note, that the overflowing water may be up to 100ºC hot.

The overflow must be connected with tubing to an appropriate container or sink. Make sure, that the tubing cannot be clogged or bended, and that it continually runs downhill.

12 Shaking Device (special equipment only waterbaths WB 14 and WB 22)

Description

The shaking device moves back and forth with a frequency of approx. 10 to 150 movements per minute. The frequency is electronically controlled and infinitely variable. Using the screw on the panel the frequency can be locked. The distance covered by one movement is 15mm.

Mounting and removing the shaking device

The waterbath can be operated without the shaking device and the support frame can be removed from the waterbath. It is especially advisable to remove the shaking device if the waterbath shall be used at high temperatures and the shaking device is not needed (otherwise there is unnecessary loss of water by evaporation).
Additionally to the removing of the shaking device itself, the side cover has to be replaced by the second side cover which was delivered with the waterbath. To mount the shaking device, please perform the described tasks in reverse order.
If you have a water bath with a rectangular opening of the tub, it is necessary to place the provided mounting frame on the tub prior to the mounting of the shaking device.

12.1 Initial operation

Mains connection

The supply mains has to be positioned making sure that it does not come into contact with any hot parts.

Filling of the waterbath

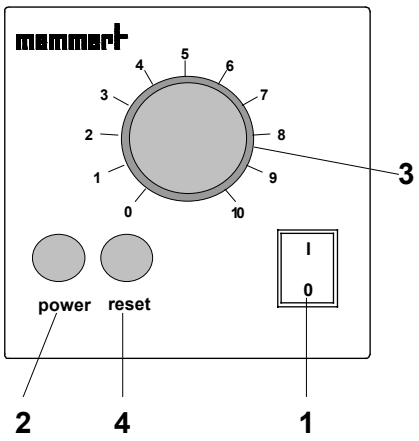
In order to protect the stainless steel parts of the waterbath as well as the shaking device from corrosion it is necessary to use **demineralized** water. The bath has to be filled in such way that the distance between the top edge of the waterbath and the water level is at least 10 mm and no more than 50 mm (with loaded shaking device).

Attention! Dependent on the load in the shaking device and the desired shaking frequency the water in the bath as well as the fluid in the shaking device (which might be aggressive) may spill over.
In this case please adjust either the shaking frequency or the water level but do not leave more than 50 mm distance between top edge of the waterbath and water level.

Turn on the shaking device

Turn main switch 1 on the shaking device to position I, the green light 2 indicates "ready for operation".

The shaking frequency is adjusted using button 3.



For your protection the device is equipped with an overload sensitive automatic switch off. If the green lamp is lit but the shaking device does not move despite an appropriate setting of the shaking frequency, this safety device has stopped the equipment.

In this case please check if there is overload of the device or if something got stuck between the moving parts.

Remove the overload condition and restart the unit by pressing the reset button 4.

Cleaning and maintenance

Please see "**cleaning and maintenance**" in the operating instructions for the water baths.

13 Cleaning and maintenance

By regular cleaning of the easy to clean the tank, residues are avoided which at continuous influence can impair the outfit and function of the water-/oilbath.

The unit can be cleaned with commercial stainless steel cleaning agent. Please note that objects liable to rust must not be placed into the bath. Rust sediments lead to contamination of the stainless steel tank or external casing.

If rust stains caused by contamination occur on the tank surface, the affected areas must be cleaned and polished immediately.
Limeresidues can be removed by vinegar or citron-solutions.

On units with gable cover we recommend that the hinge bolts are oiled from time to time if the bath is used frequently.

14 Checklist for rectifying faults

Fault	**Cause**
Main switch pushed, green lamp in main switch-module remains dark	**Equipment not connected** **Lamp faulty** **Main fuse defective**
No temperature indication on the display	**Microfuse defective** T32mA 250 V~ on printed wiring board 55139.x
Yellow lamp in main switch module remains dark	**Ambient temperature too high, working temperature in oven higher than the working temperature set with rotary knob (setpoint).** **Lamp faulty**
Red lamp in main switch module lighted	**Temperature safety device is actuated (see chapter 8).**
Display: "E-1" in working controller module	**Circuit element TRIAC defective,** send controller back to Memmert for exchange.
Display: "E-2 in working controller module	**Power board defective,** send controller back to Memmert for exchange.
Display: "E-3 in working controller module	**Pt 100 defective** **actual temperature out of range**
Display: "E-4 in working controller module	**Internal Configuration Error,** Turn off the oven, then turn it back "on".

In case of a malfunction contact an authorized service station for Memmert equipment or please inform the Memmert service department.

The details in these Operation Instructions must be carefully observed in order to ensure satisfactory operation.

Any warranty and claims for damage are excluded if these instructions are disregarded.

We reserve the right to make changes in technical specifications.
Dimensions subject to confirmation

Standard units are safety-approved and bear the test marks:

ME52

15 Our Address

MEMMERT GmbH+Co.KG
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Federal Republic of Germany
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Fax: +49 9122 / 14585
Internet: www.memmert.com

Direct dialling-in service department:
☎: +49 9122/925-143
E-Mail: service@memmert.com

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EC Declaration of Conformity

Manufacturer´s name and address:	MEMMERT GmbH + Co. KG Äußere Rittersbacher Straße 38 D-91126 Schwabach
Product:	Waterbath / Oilbath
Type:	WB … / OB …
Sizes:	7 / 10 / 14 / 22 / 29 / 45
Nominal voltage:	AC 230 V 50/60 Hz alternative AC 115 V 50/60 Hz

The designated product is in conformity with the European EMC-Directive

89/336/EEC

including amendments

Council Directive of 03 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Full compliance with the standards listed below proves the conformity of the designated product with the essential protection requirements of the above-mentioned EC Directive:

DIN EN 61 326 (VDE 0843 part 20): 1998-01	**EN 61 326: 1997**
DIN EN 61 326/A1 (VDE 0843 part 20/A1): 1999-05	**EN 61 326: 1997/A1 : 1998**
RFI suppression: Class B	
DIN EN 61 000-3-11 (VDE 0838 part 11): 2001-04	**EN 61 000-3-11: 2000**

The designated product is in conformity with the European Low Voltage Directive

73/23/EEC

including amendments

Council Directive on the approximation of the laws of the Member States relating to Electrical equipment for use within certain voltage limits.

Full compliance with the standards listed below proves the conformity of the designated product with the essential protection requirements of the above-mentioned EC Directive:

DIN EN 61 010-1 (VDE 0411 part 1): 1994-03	**EN 61 010-1: 1993**
DIN EN 61 010-2-010 (VDE 0411 part 2-010): 1995-03	**EN 61 010-2-010: 1994**

Schwabach, 21.03.03

(Legally binding signature of the issuer)

This declaration certifies compliance with the above mentioned directives but does not include a property assurance. The safety note given in the product documentation which are part of the supply, must be observed.

EC Declaration of Conformity

Manufacturer´s name and address:	MEMMERT GmbH + Co. KG Äußere Rittersbacher Straße 38 D-91126 Schwabach
Product:	Shaking device
Type:	M00
Sizes:	SV1422
Nominal voltage:	AC 230 V 50/60 Hz alternative AC 115 V 50/60 Hz

The designated product is in conformity with the European EMC-Directive

89/336/EEC

including amendments

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RFI suppression: Class B

EN 61 326: 1997
EN 61 326: 1997/A1 : 1998

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Glossar:

- **nominal temperature**=themaximum adjustable set-temperature of the oven
- **ambient temperature**=the continuous temperature of the room in which the oven is set up
- **set temperaturedependent on operation**=the integrated digital timer for the hold time starts no earlier than the temperature in the chamber has reached the setpoint to least 0.5°C at 95°C norminal temperature resp. 2°C at 200°C nominal temperature.